DUAL EVAPORATOR REFRIGERATOR TRAINING

Service Guide --- Pub # 31-9118
Service Bulletin --- REF11-07

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Comparison

Standard Single Evap System

ClimateKeeper2 System

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BENEFIT OF DUAL EVAPORATOR TECHNOLOGY

Energy star rating in 2004 (15% better then 2001 DOE standard)

Better tasting ice

Near Silent 30 dBA

20% Less FZ Defrost - Better food Preservation

More space on top shelf: Remove FF fan plenum(No Eagle)

2X more humidity Keep food longer

Independent/Adaptive Cooling: Variable speed compressor & fans Dual evaporator

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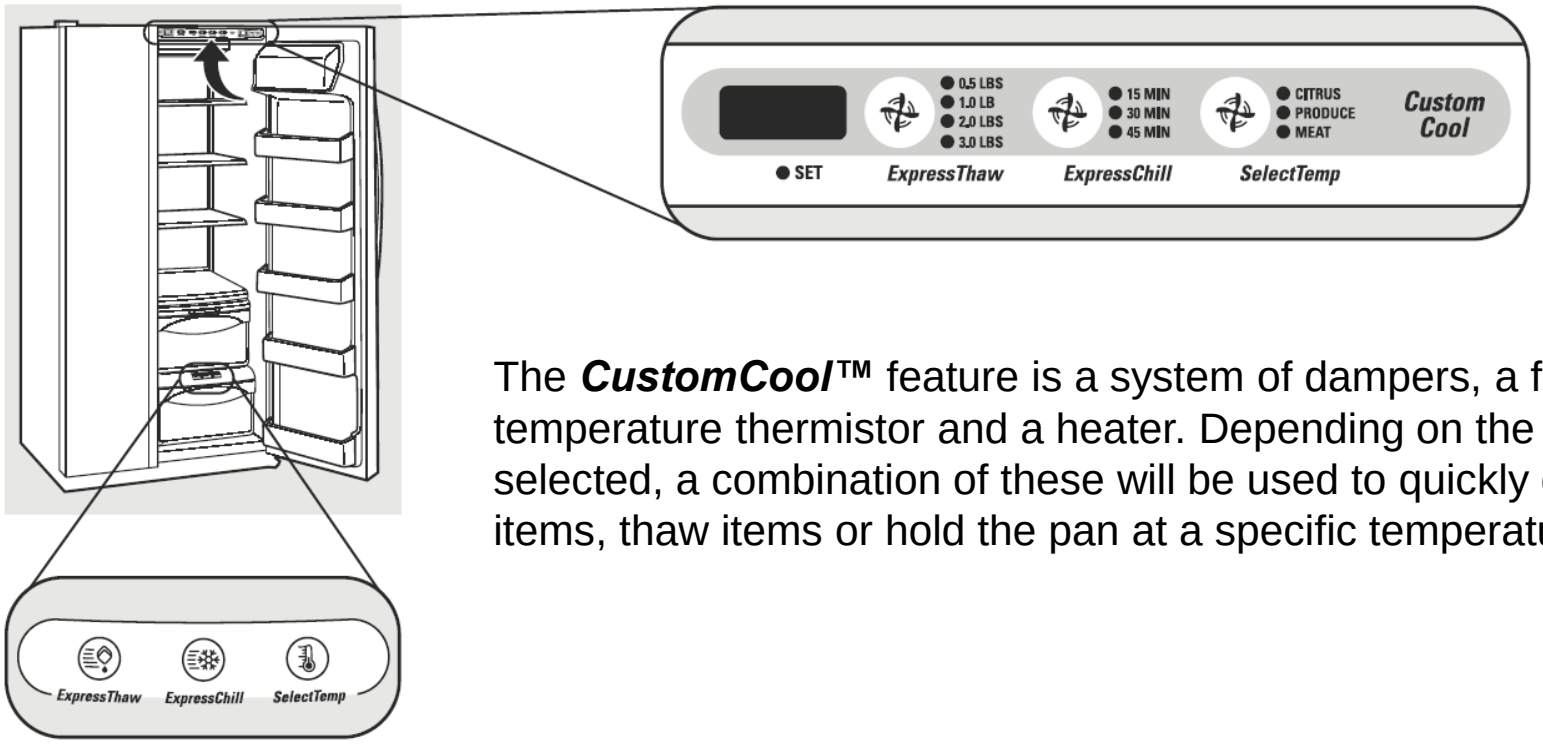
Custom Cool



The ***CustomCool*™** feature is a system of dampers, a fan, a temperature thermistor and a heater. Depending on the function selected, a combination of these will be used to quickly chill items, thaw items or hold the pan at a specific temperature.

Select the ***ExpressThaw,*™ *ExpressChill*™** or ***SelectTemp*™** pad. The display and ***SET*** light will come on. Tap the pad until the light appears next to the desired setting. Use the chart to determine the best setting to use.

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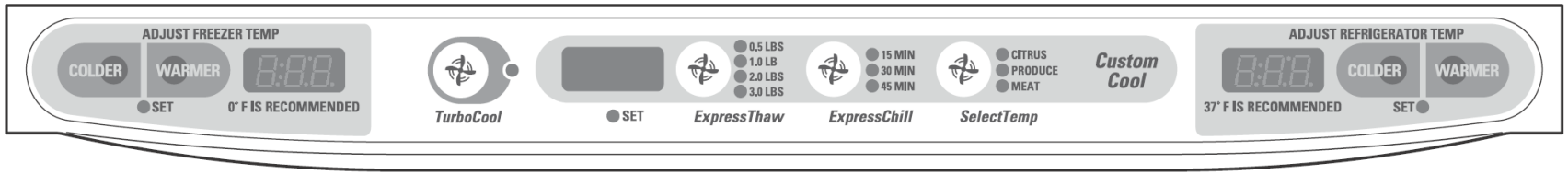

Settings:

Express Chill- **15, 30, 45 minutes. Temperature not monitored, fan always on, damper always open**

Express Thaw- **4, 8, 10, 12 hour settings at 41F; heater cycles, single damper open, fan always on, returns to 34F and holds when time setting ends.**

Citrus Setting- **Holds temperature at 42F, fan always on, heater cycles.**

Produce Setting- **Holds temperature at 34F, fan always off, heater cycles, double damper cycles.**

Meat Setting- **Holds temperature at 32F, fan always off, double damper cycles, heater cycles.**

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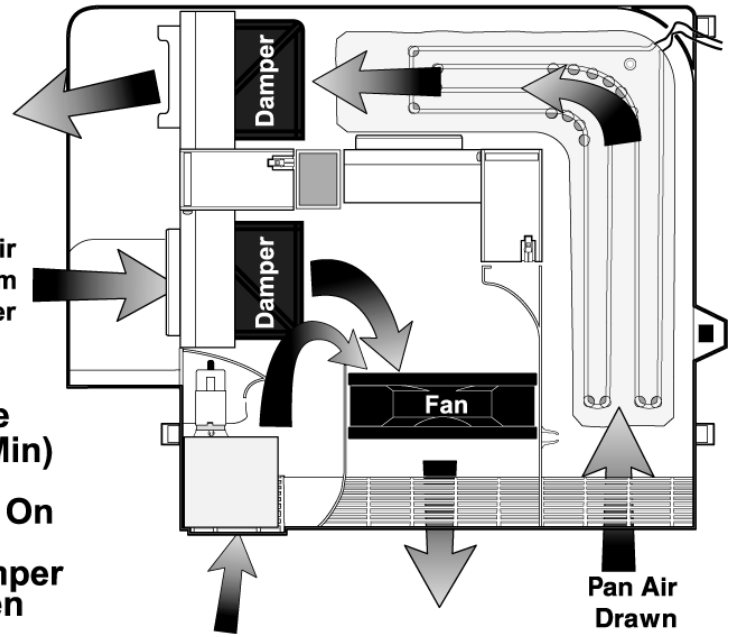
Custom Cool

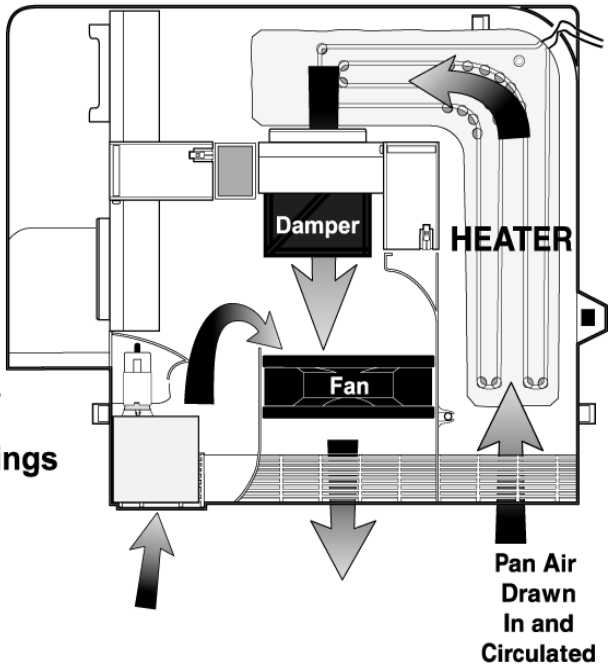
Express Chill™



- Timed Cycle (15,30,45 Min)
- Fan Always On
- Double Damper Always Open

Express Thaw™

- Heater Cycles
- Single Damper Always Open
- Fan Always On
- Maintains 41^0 Using thermistor
- 4, 8 or 12 hr Settings



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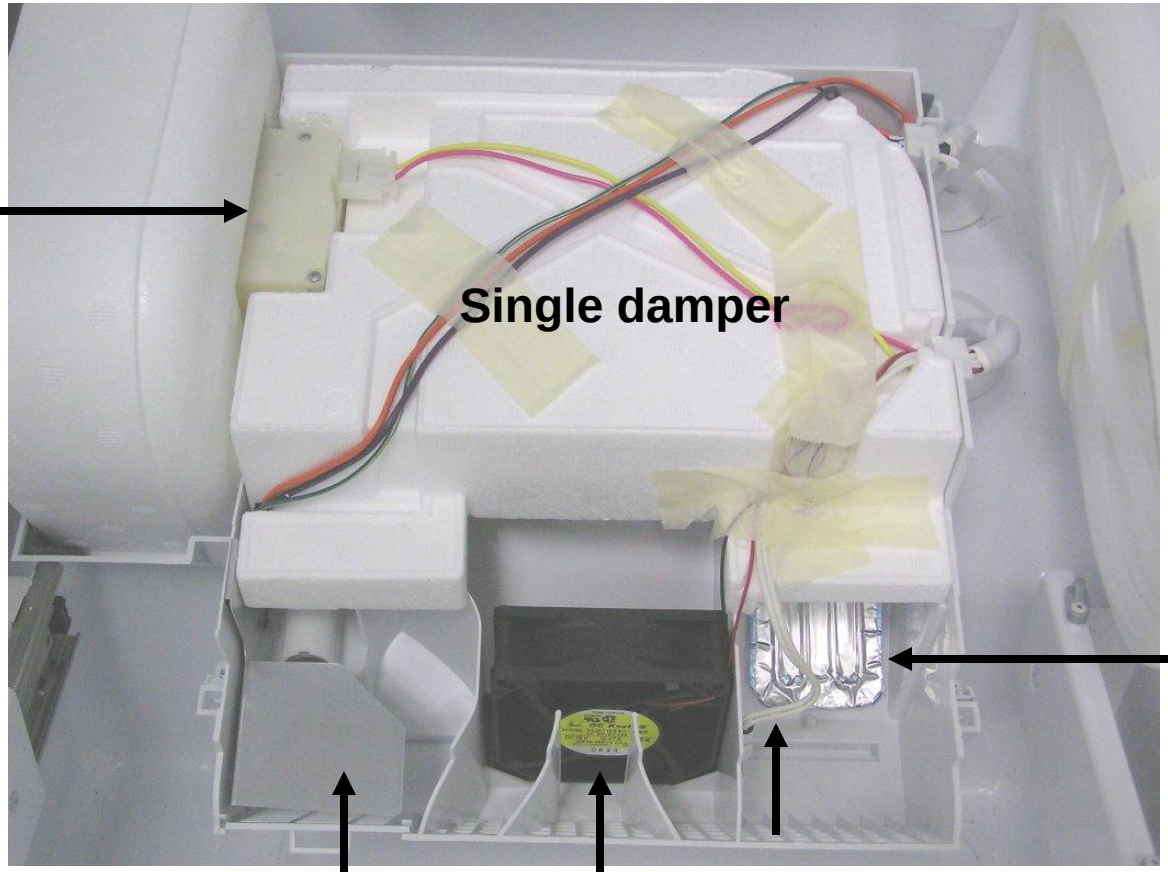
Custom Cool Components



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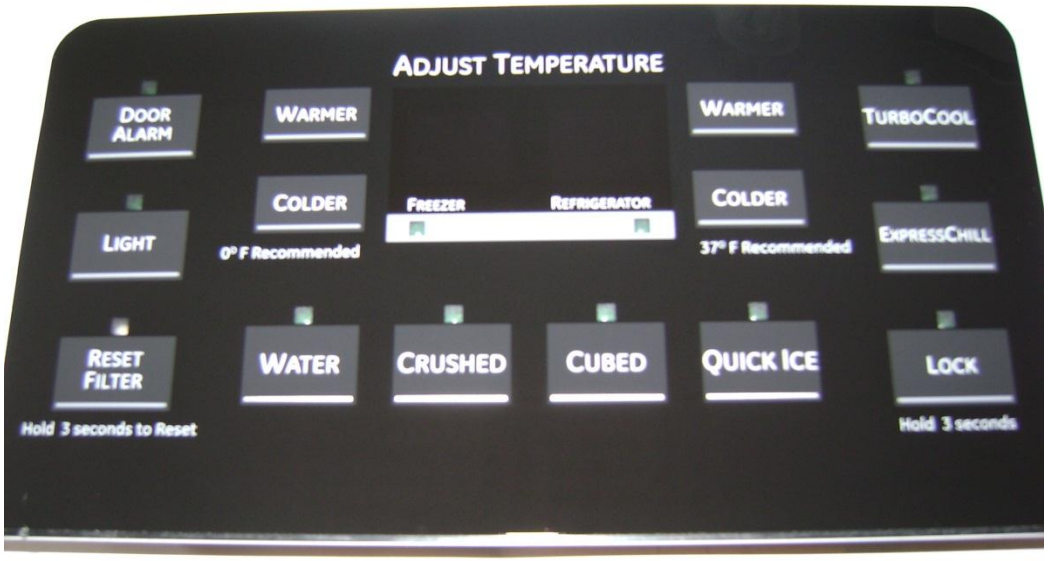
Dispenser Board

(Some Models)



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Dispenser Board

(Some Models)

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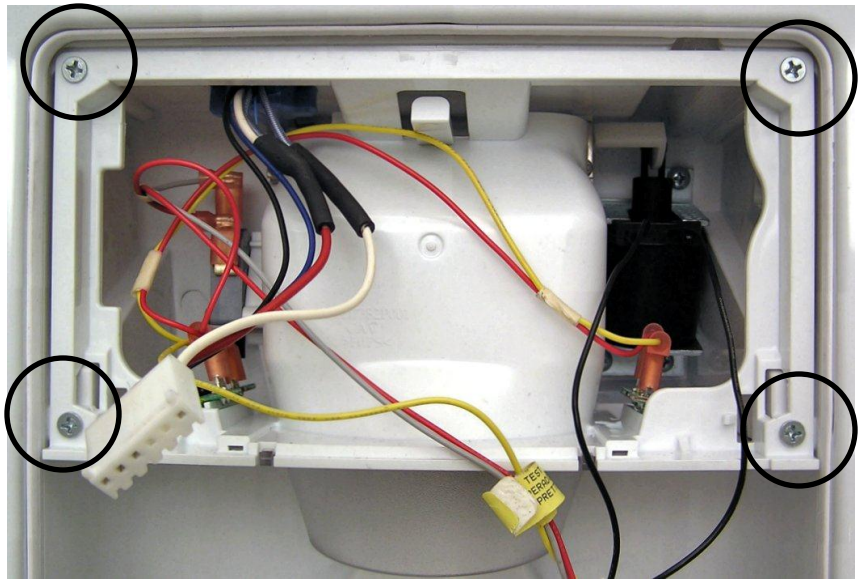
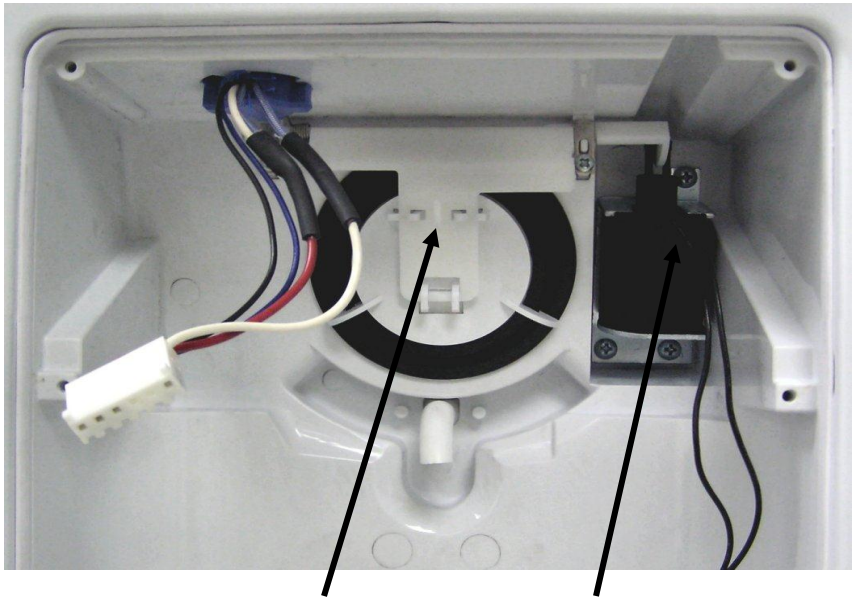
Dispenser Board Removal

Remove 4 Phillips-head screws



Remove Dispenser Shield



Duct door and Solenoid

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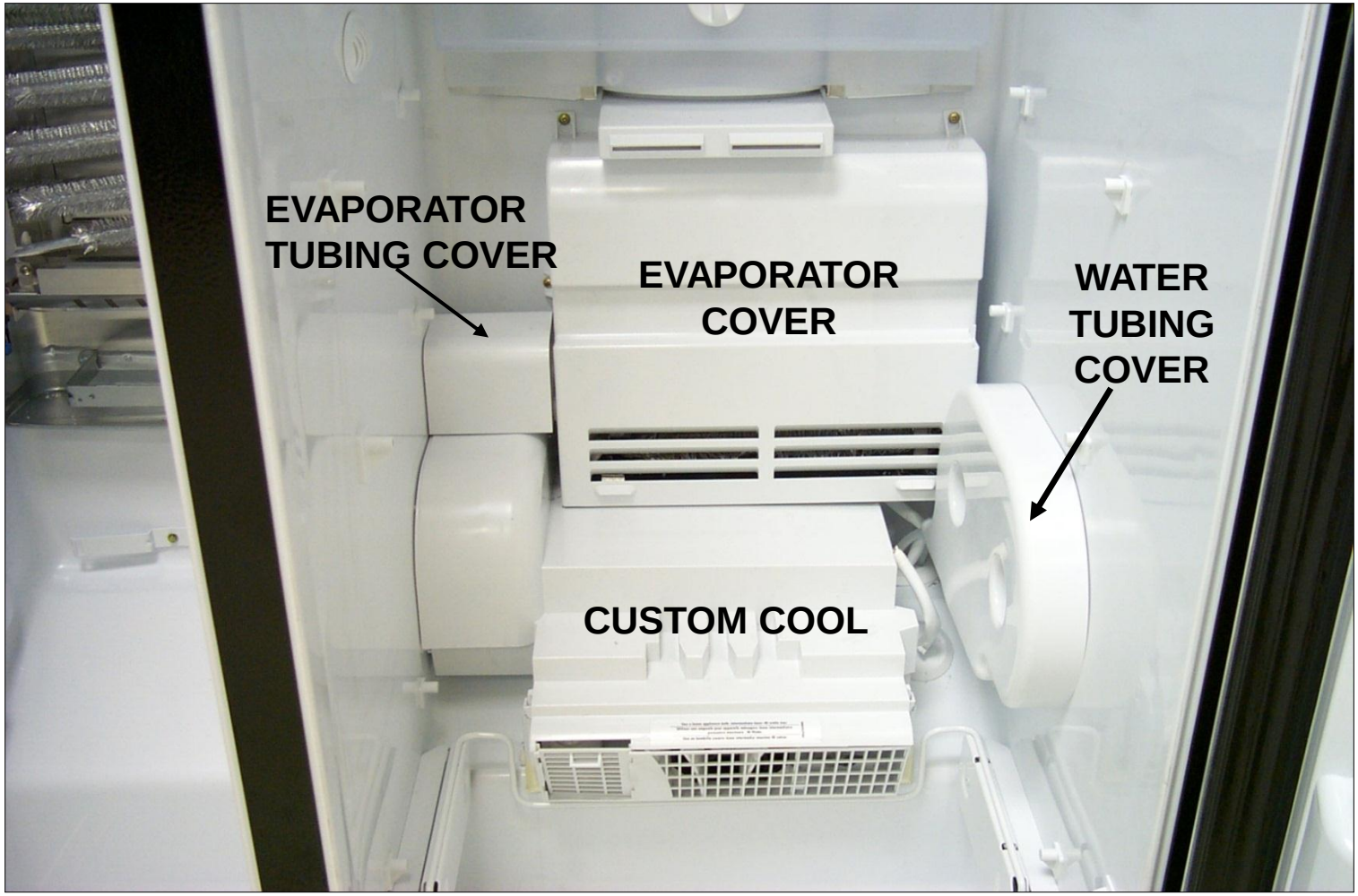
FRESH FOOD DESIGN



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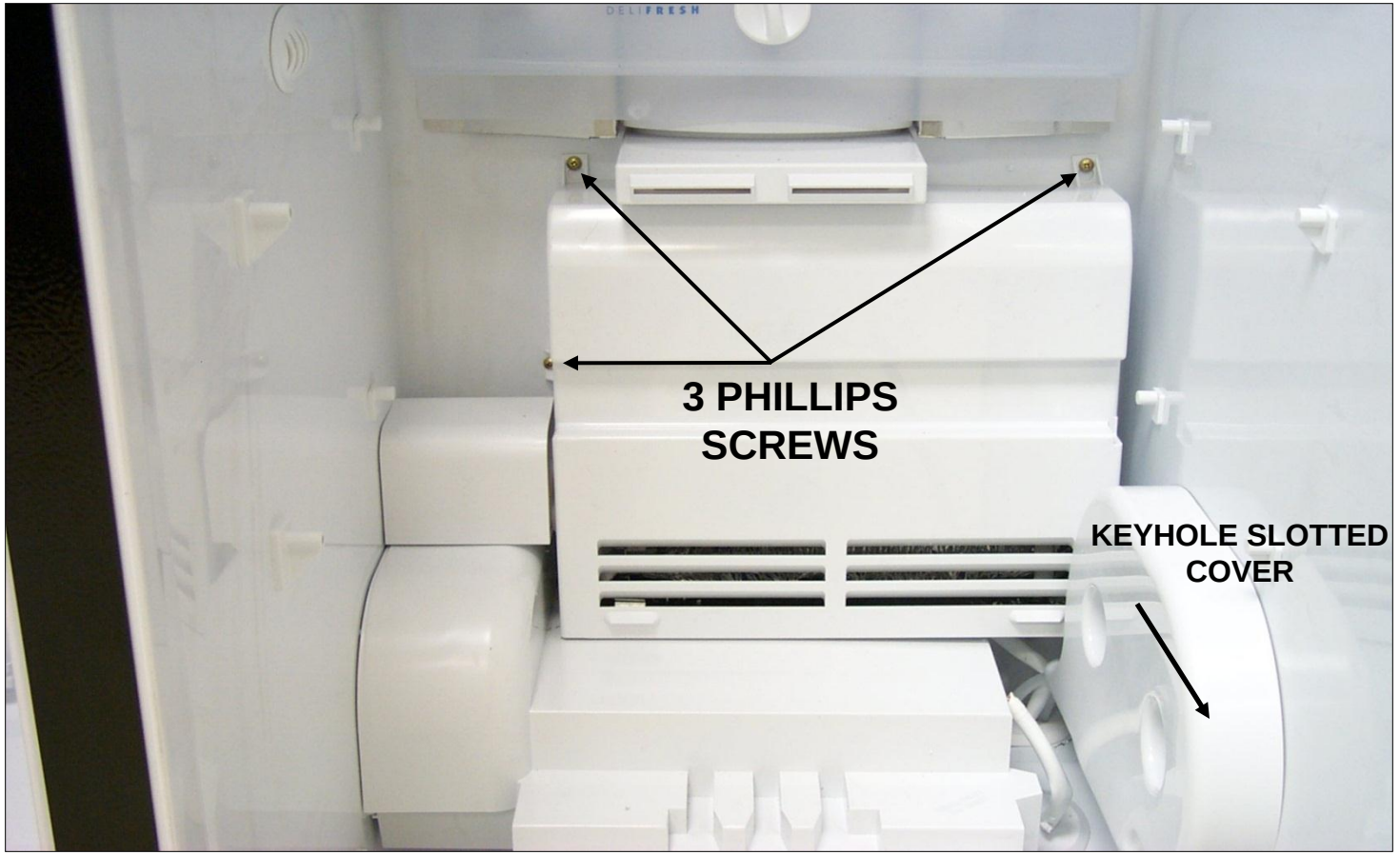
FRESH FOOD EVAPORATOR ACCESS

Pull water tubing cover forward to disengage. Remove 3 Phillips screws and pull cover forward to expose fresh food evaporator and fan connector



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FRESH FOOD FAN

The fresh food fan is a 3 speed 12 VDC motor mounted in an EPS cover (Styrofoam) in front of the fresh food evaporator

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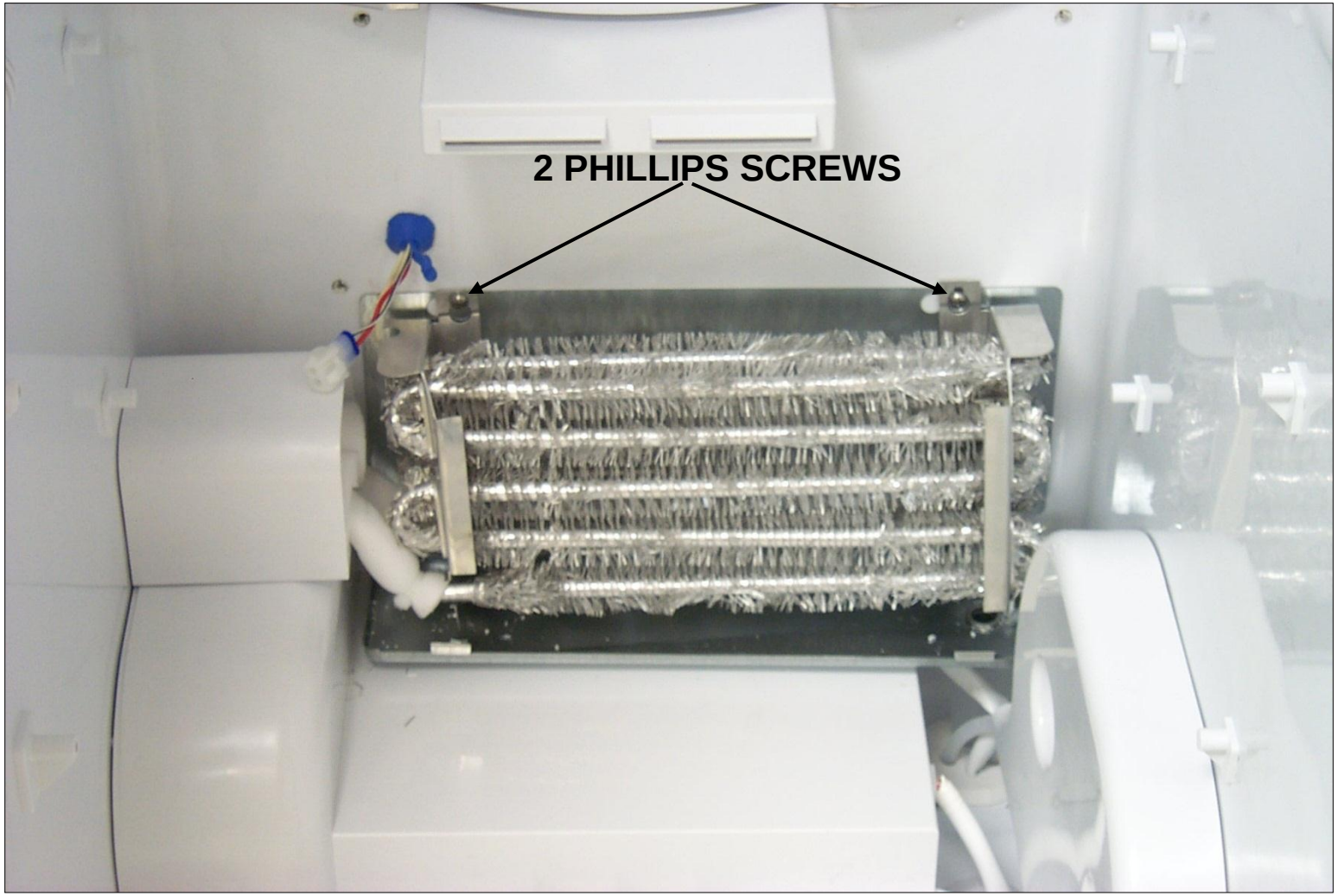
FRESH FOOD EVAPORATOR



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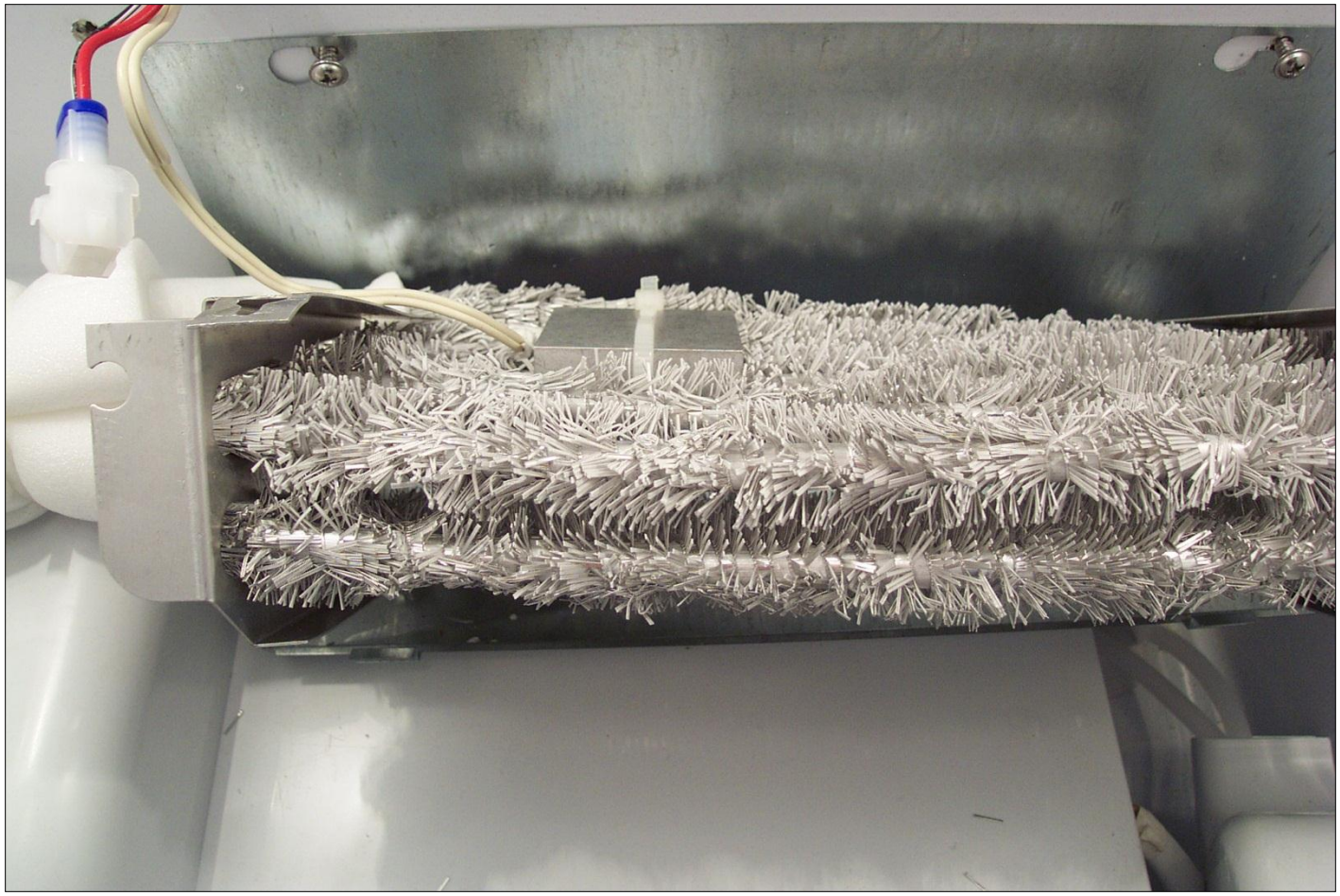
FRESH FOOD EVAPORATOR THERMISTOR

The thermistor is located in an aluminum thermal block on the back of the evaporator



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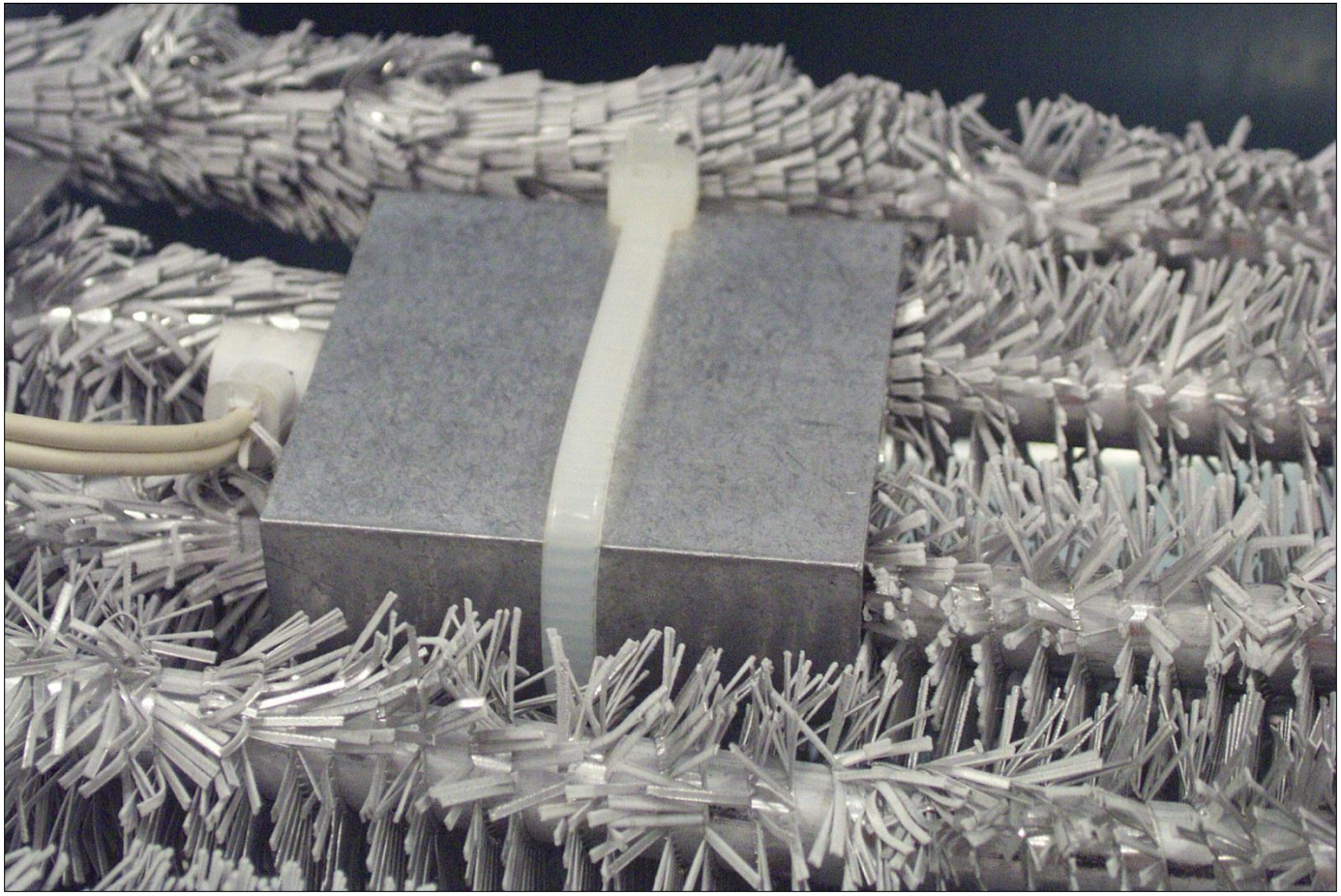
FRESH FOOD EVAPORATOR THERMISTOR

The thermal block is wire-tied to the evaporator



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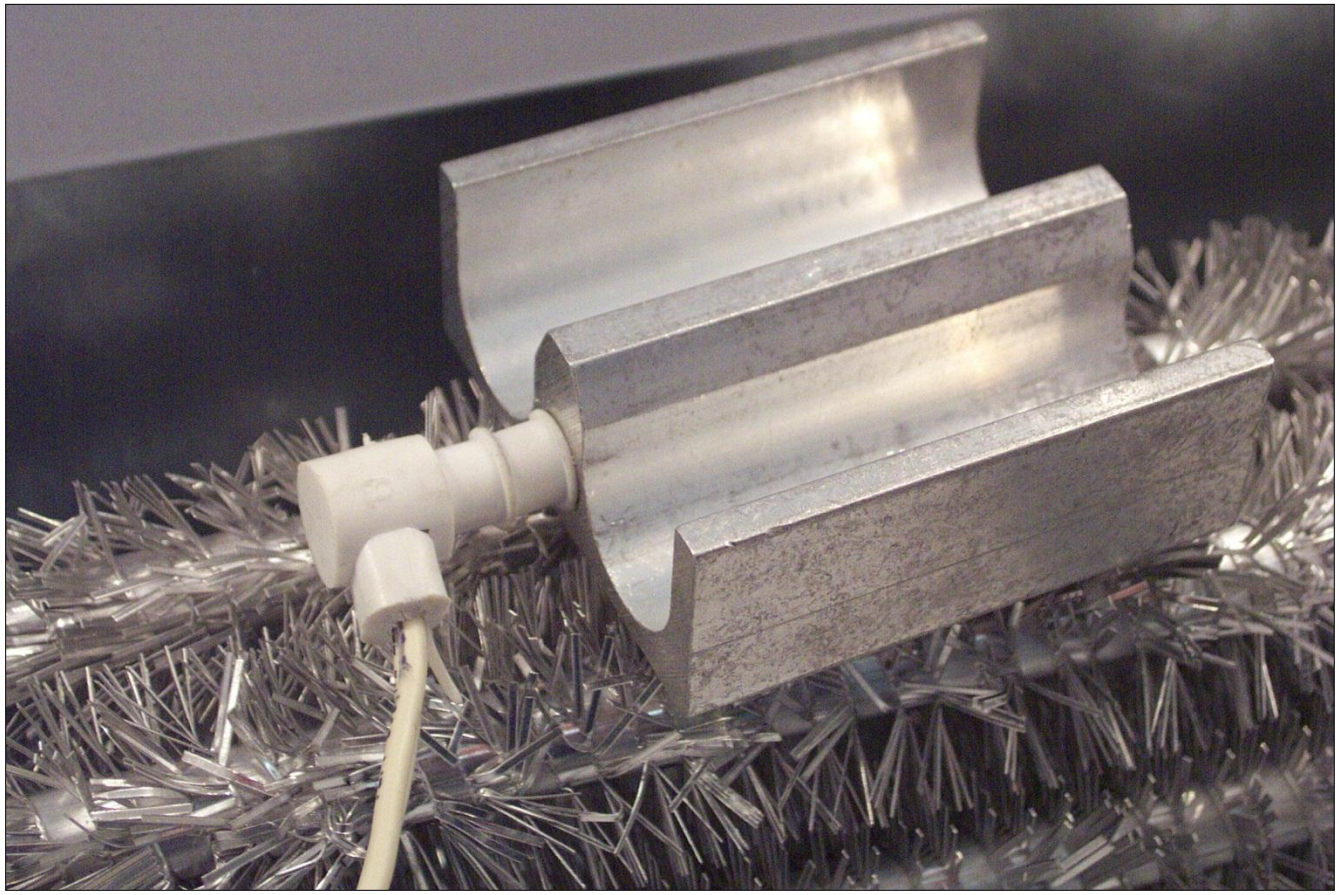
FRESH FOOD EVAPORATOR THERMISTOR

The fresh food evaporator thermistor has a molded housing at the end



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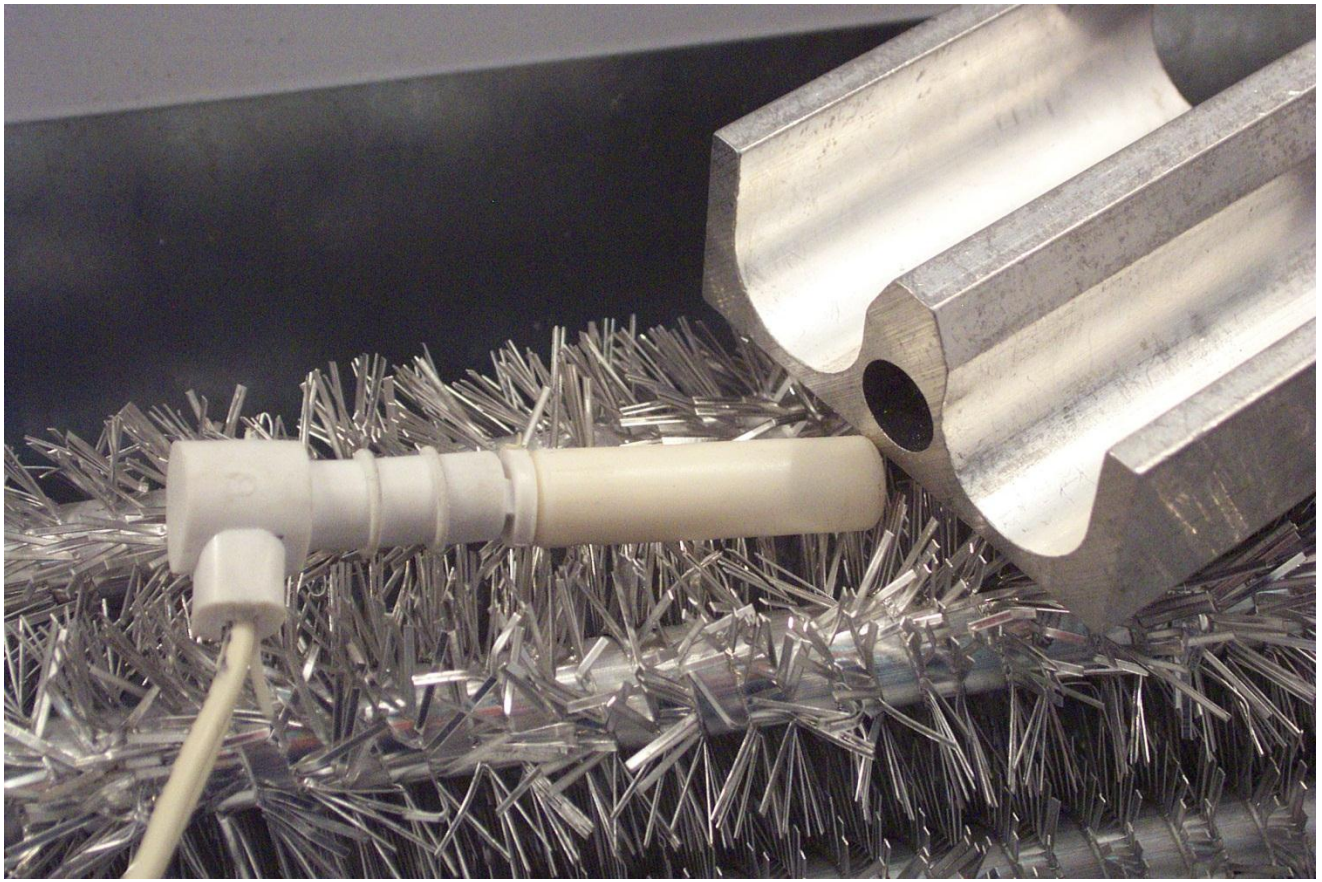
FRESH FOOD EVAPORATOR THERMISTOR

Barbs on the molded housing hold the thermistor in the thermal block



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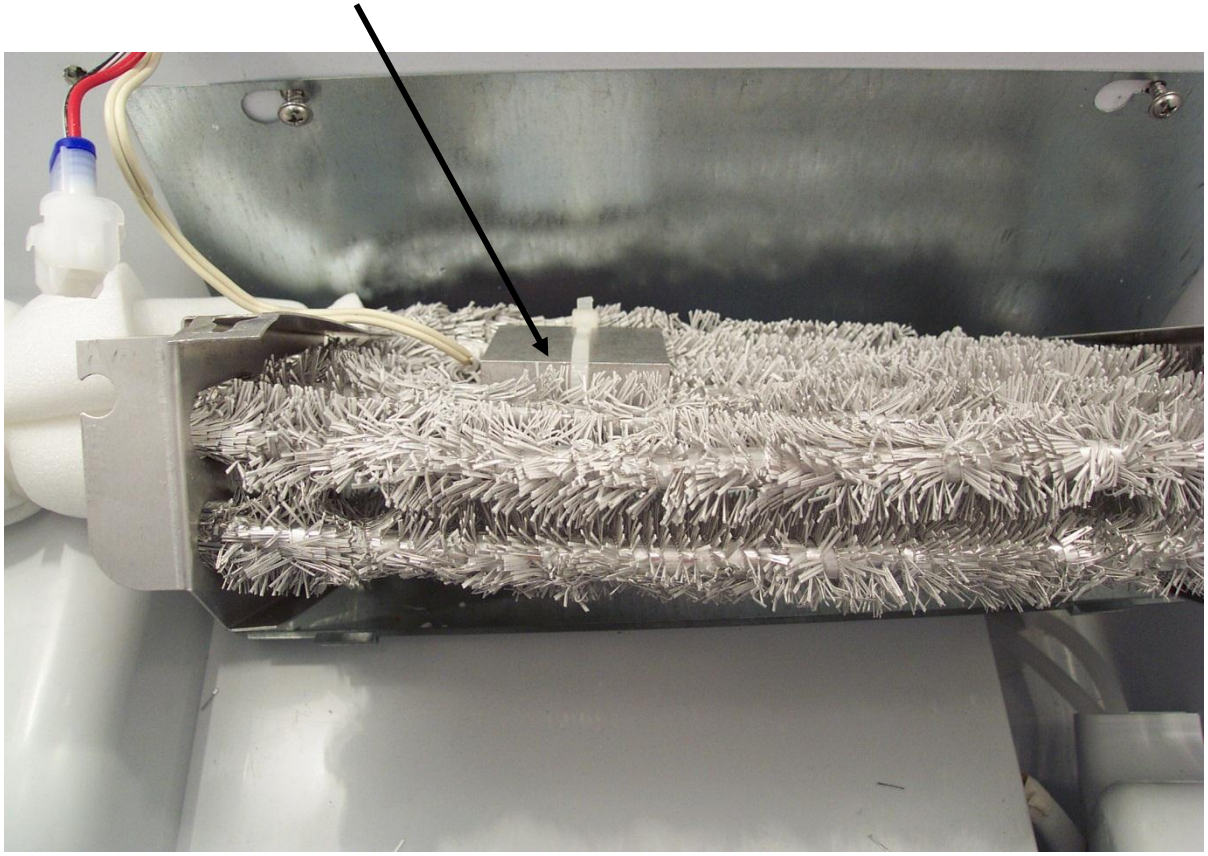
FRESH FOOD EVAPORATOR THERMISTOR

Make certain the thermal block is securely fastened to the evaporator



New FF Evaporator Thermistor Info !

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FRESH FOOD DEFROST (See Pages 35 & 36)

The refrigerator cools the fresh food until the fresh food thermistor is satisfied.

The compressor cycles off, but the fresh food fan runs at low speed until the evaporator thermistor reaches 34F.

The fan continues to run for an additional 5 minutes once the evaporator reaches 34F. The normal defrost time is approximately 30 minutes. The maximum run time in low speed fan is 60 minutes.

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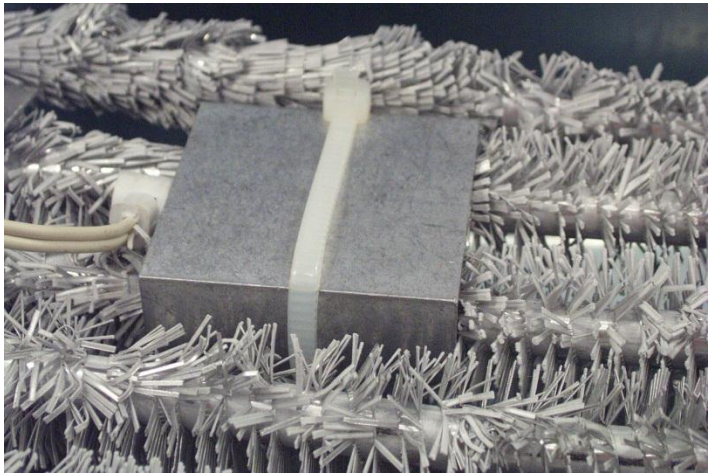
FRESH FOOD “Extended” DEFROST #1 (See Pages 35 & 36)

If normal defrost fan time exceeds 60 minutes, the fan switches to high speed.

The fan runs up to an additional 30 minutes at high speed trying to reach 34F.

If after 90 total minutes of fan time, the fresh food evaporator is still below 34F, the control changes to defrost #2.



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FRESH FOOD “Extended” DEFROST #2 (See Pages 35 & 36)

If the fresh food fan has been operating for 90 minutes, the main control looks for a fresh food thermistor temperature above 52F.

If the fresh food thermistor is above 52F, the main control assumes there is a problem reading the evaporator thermistor and ends the defrost cycle and returns to normal cooling.

If the fresh food thermistor is less than 52F, the main control assumes a 3-way valve leak and shuts off the compressor and the fan continues to run in high speed until the evaporator thermistor reaches 34F and FF thermistor is 34F above set-point.

The fan then continues to run for an additional 5 minutes after the 34F evaporator thermistor is reached.

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FRESH FOOD FORCED DEFROST (See Pages 35 & 36)

If the main control board senses the fresh food section has been cooling for 45 minutes, it immediately stops the refrigerant flow through the fresh food evaporator.

The main control board changes the position of the 3-way valve if cooling is still required in the freezer, or turns the compressor off if the freezer is satisfied.

The fresh food fan operates on high speed until the evaporator reaches 34°F, plus an additional 5 minutes after the evaporator reaches 34°F.

To prevent the refrigerator from going into forced defrost when first installed or after a power failure, the control will disregard the 45 minute time limit if the freezer temperature is above 21°F.

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SHORTED OR OPEN FRESH FOOD EVAPORATOR THERMISTOR

If the fresh food evaporator thermistor is either open or shorted, the main control defaults to a fixed defrost cycle of 1 hour at high speed fan.

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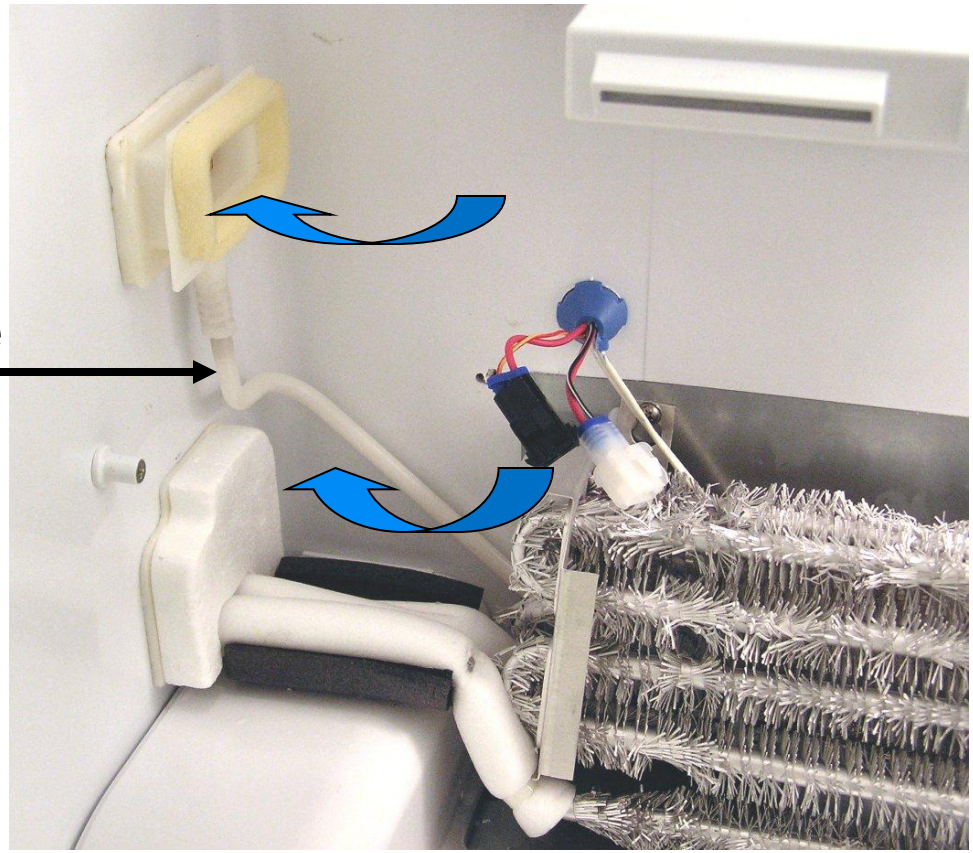
Beverage Center Duct

On some models

Drain Tube



Airflow in to Beverage Center Door. (on refrigerator door)

Lowers Temperature of bin by 4°F

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Beverage Center Blower

Replaced as an assembly with Fresh Food Fan

Note: Unless turned off, feature will remain active for six months. Press the **Beverage Center** pad to restart.

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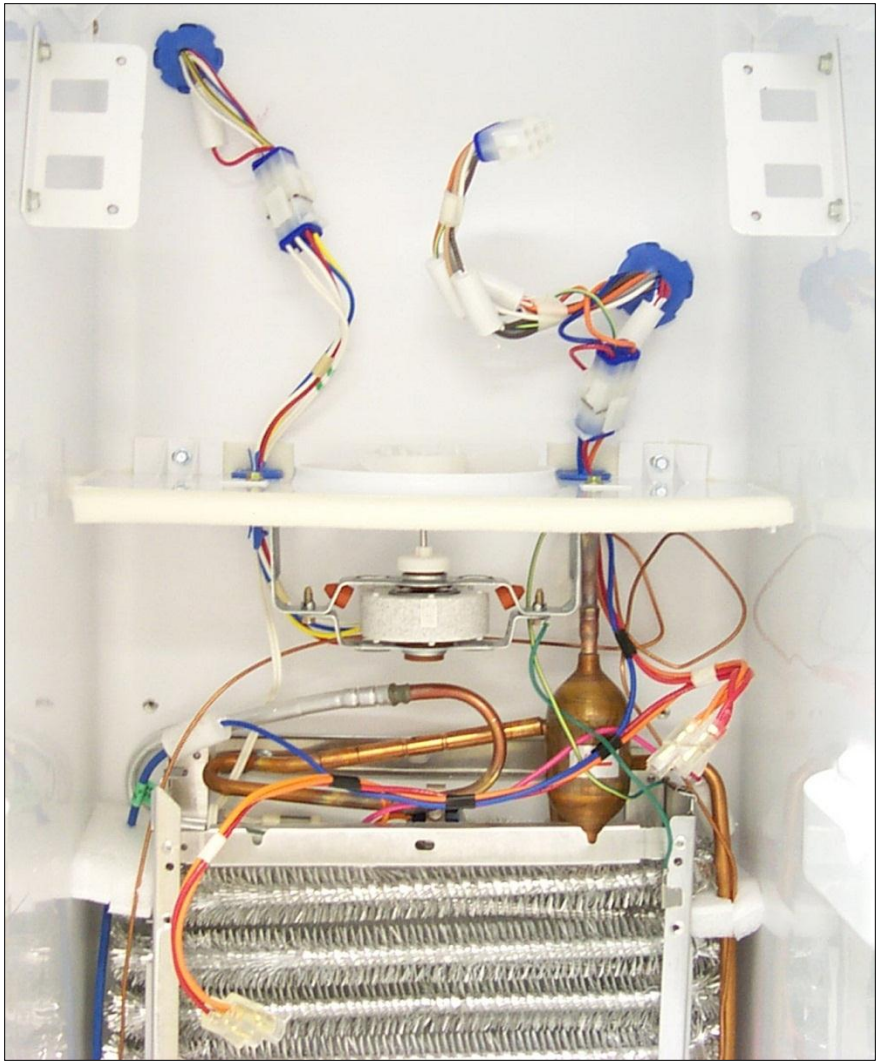
FREEZER EVAPORATOR

The freezer evaporator consists of the evaporator, check valve and accumulator.

The check valve and accumulator are not available separately.



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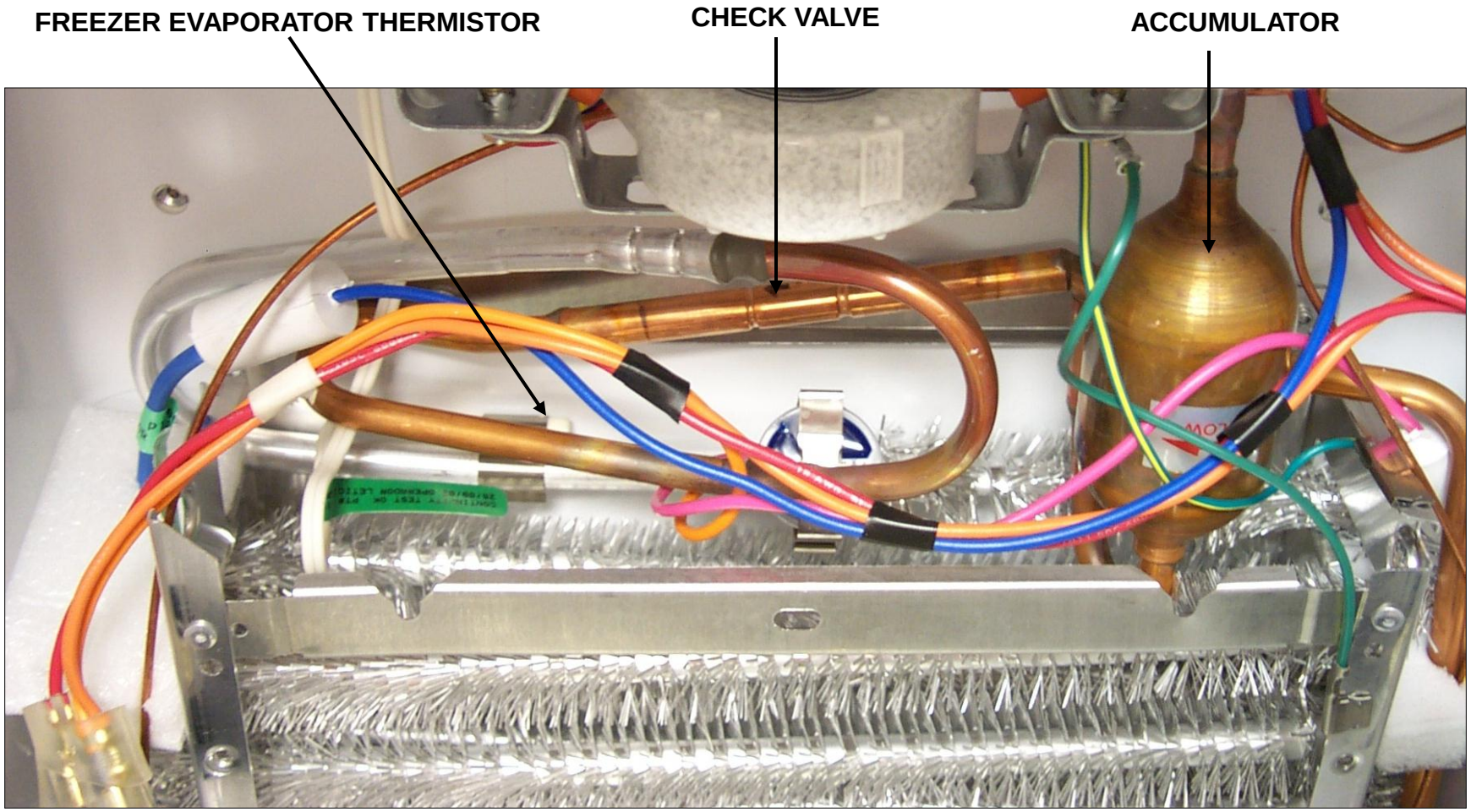
FREEZER EVAPORATOR



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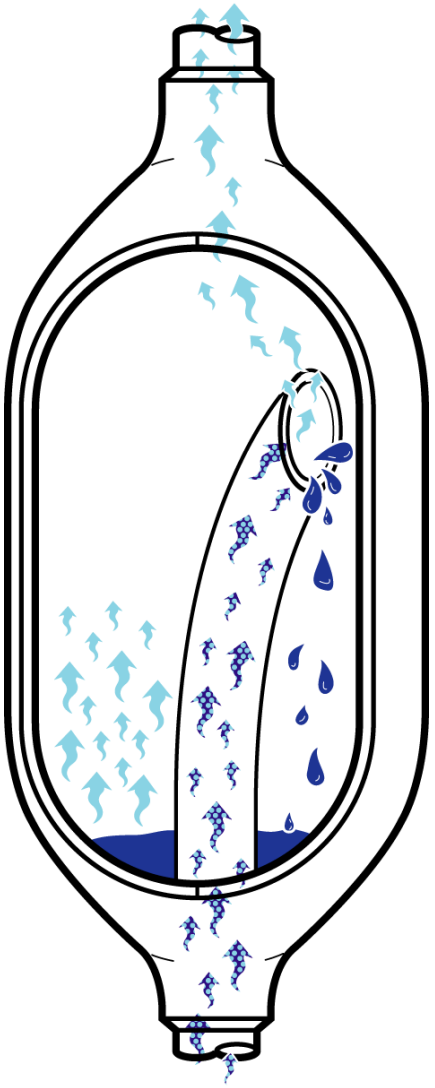
ACCUMULATOR

- The accumulator collects any liquid refrigerant left in the evaporator before it enters the suction line.

- The liquid refrigerant pools in the bottom of the accumulator until it is drawn into the compressor as a vapor.

- The accumulator comes as a part of the freezer evaporator. It is not available separately.



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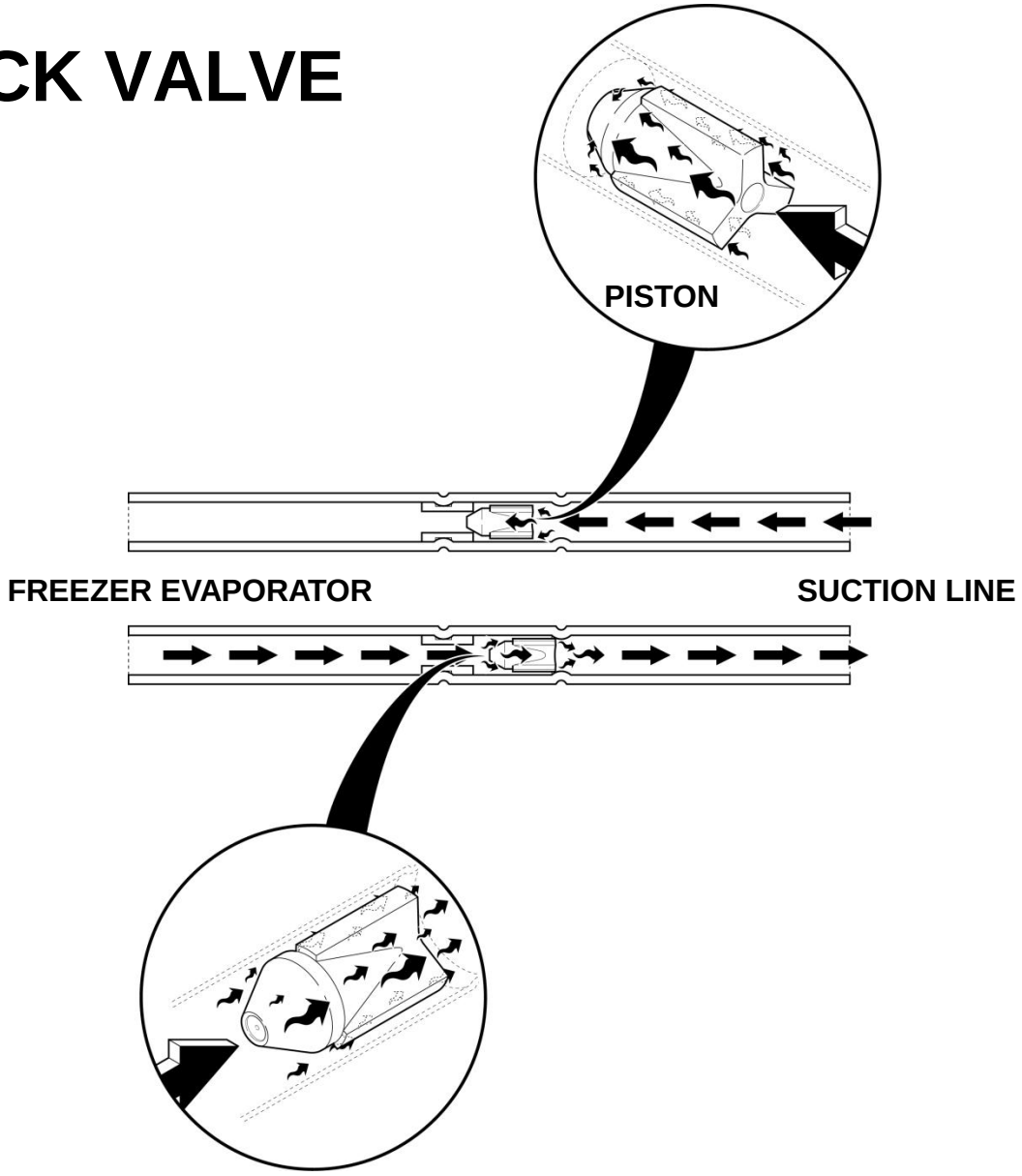
CHECK VALVE

A nylon piston inside the check valve floats back and forth depending upon refrigerant flow

The check valve prevents refrigerant from flowing back into the evaporator

The nylon piston is extremely heat sensitive, therefore the check valve is only available with a new evaporator.



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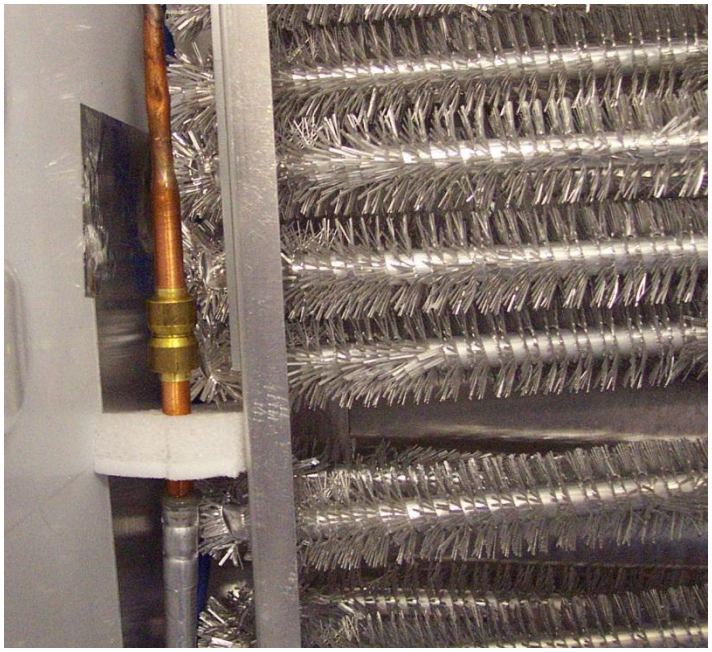
FREEZER EVAPORATOR REPLACEMENT

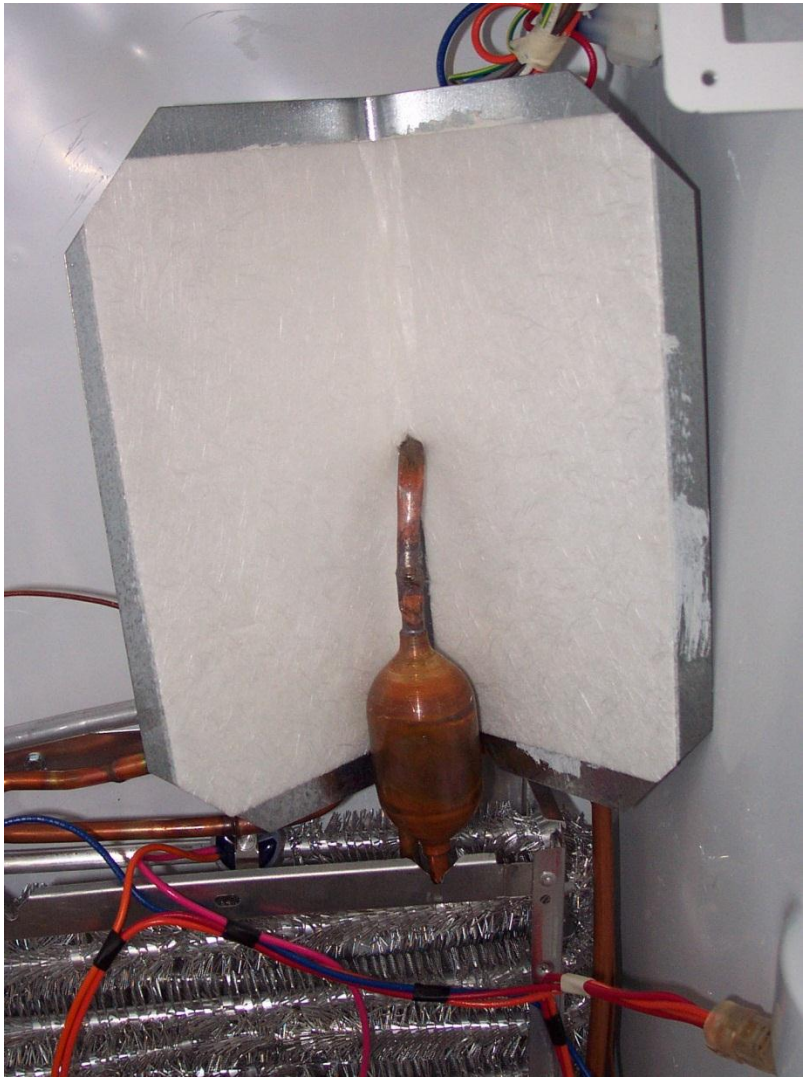
TWO METHODS:

Brazing or LOKRING

LOKRING requires two WR97X10021 connectors

Brazing requires a heat shield kit





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HEAT SHIELD KIT

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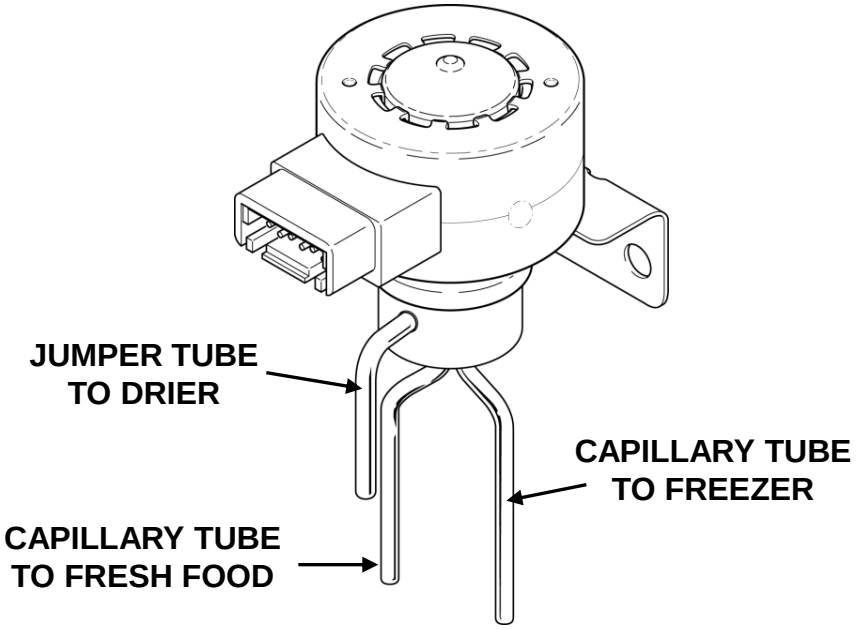
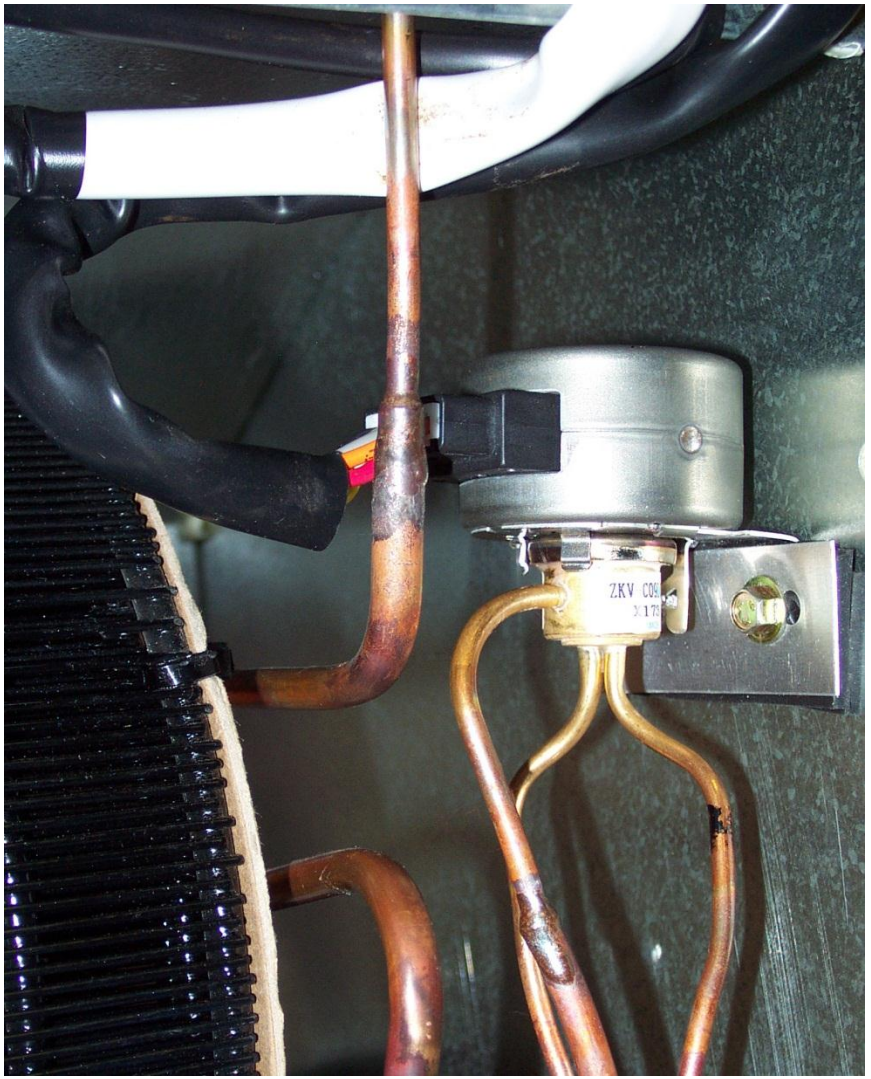
3-WAY VALVE

Three copper tubes connect to the 3-way valve

One “jumper tube” connects from the drier to the inlet on the valve

A freezer capillary and a fresh food capillary connect to the other two tubes on the valve





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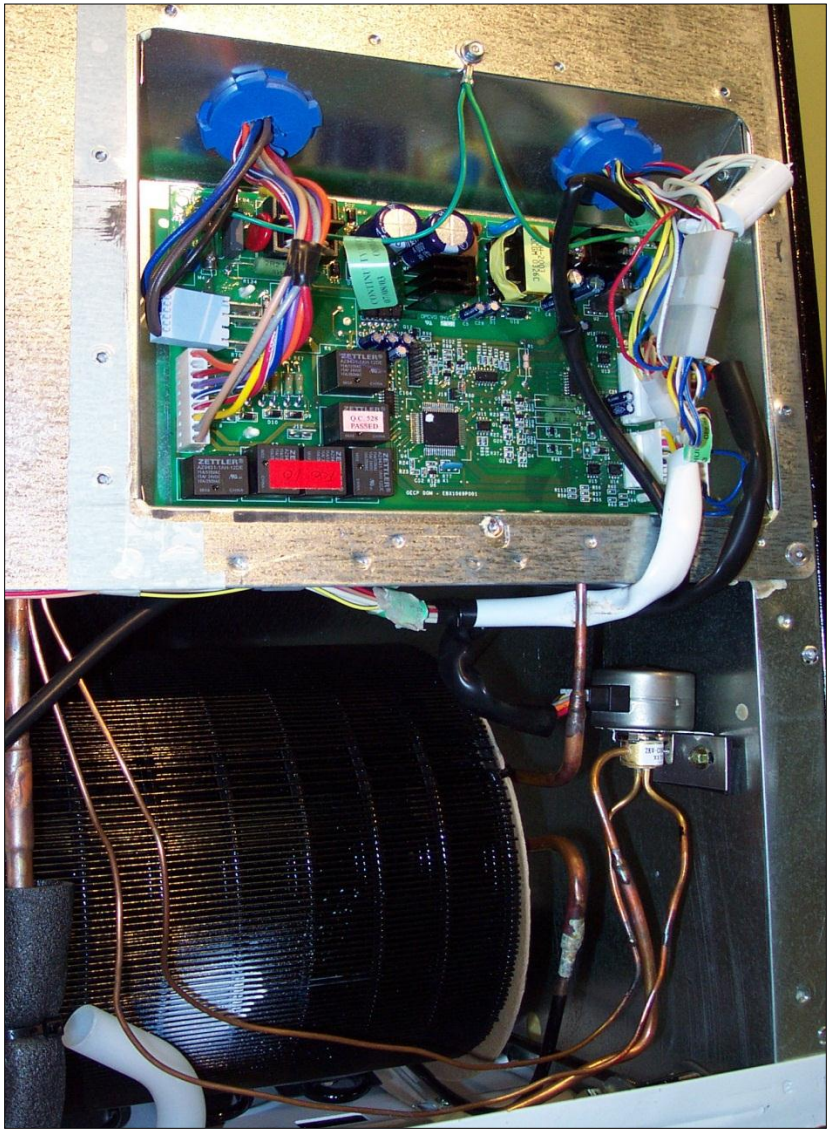
3-WAY VALVE

Located beneath the main control board in the machine compartment

Two hex head screws mount the valve to the cabinet

Make certain rubber gaskets are installed on mounting bracket to reduce vibration



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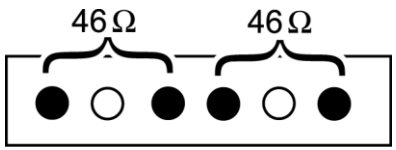
3-WAY VALVE COIL

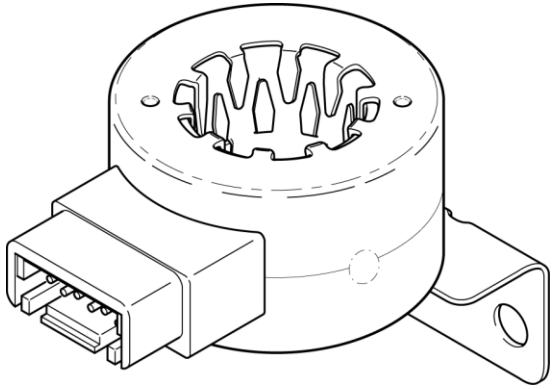
The valve coil receives 12 VDC pulses from the main board to change the position of the valve

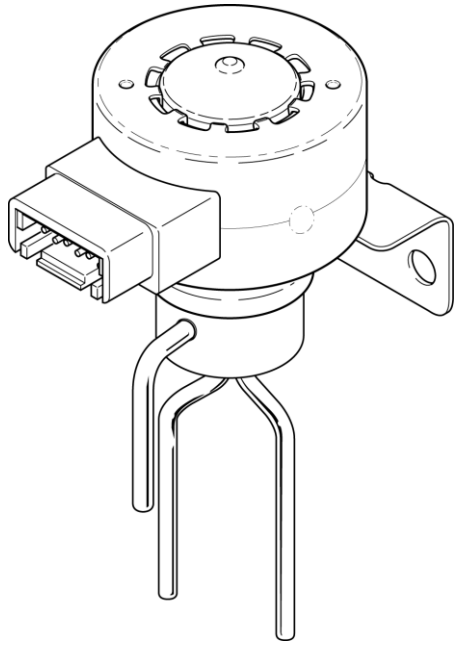
These pulses come too quickly to measure with a volt meter

The coil does have a resistance value of approximately 46 ohms

The resistance can be measured between the the following pins on the coil







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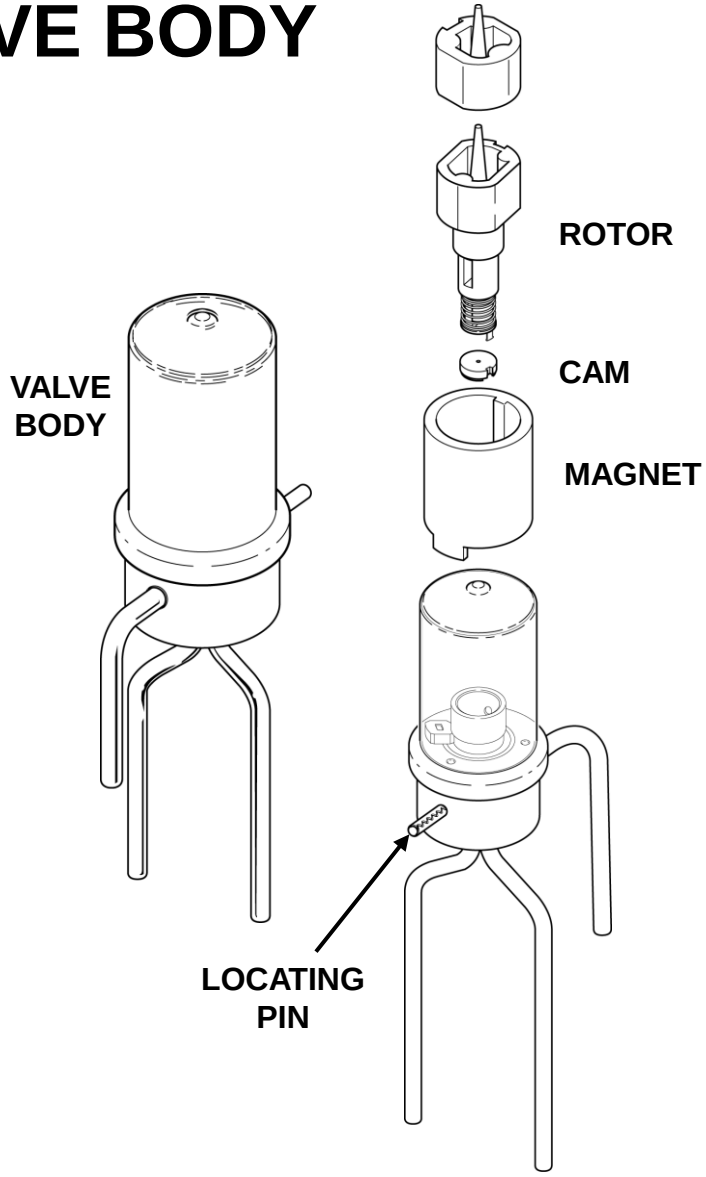
3-WAY VALVE BODY

The valve body contains a cam, rotor and magnet

The rotor and cam are grooved to rotate with the magnet

The entire valve body has refrigerant flowing through it when the compressor is operating



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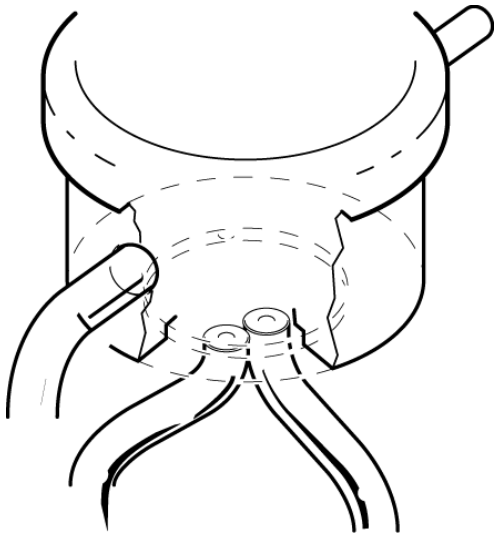
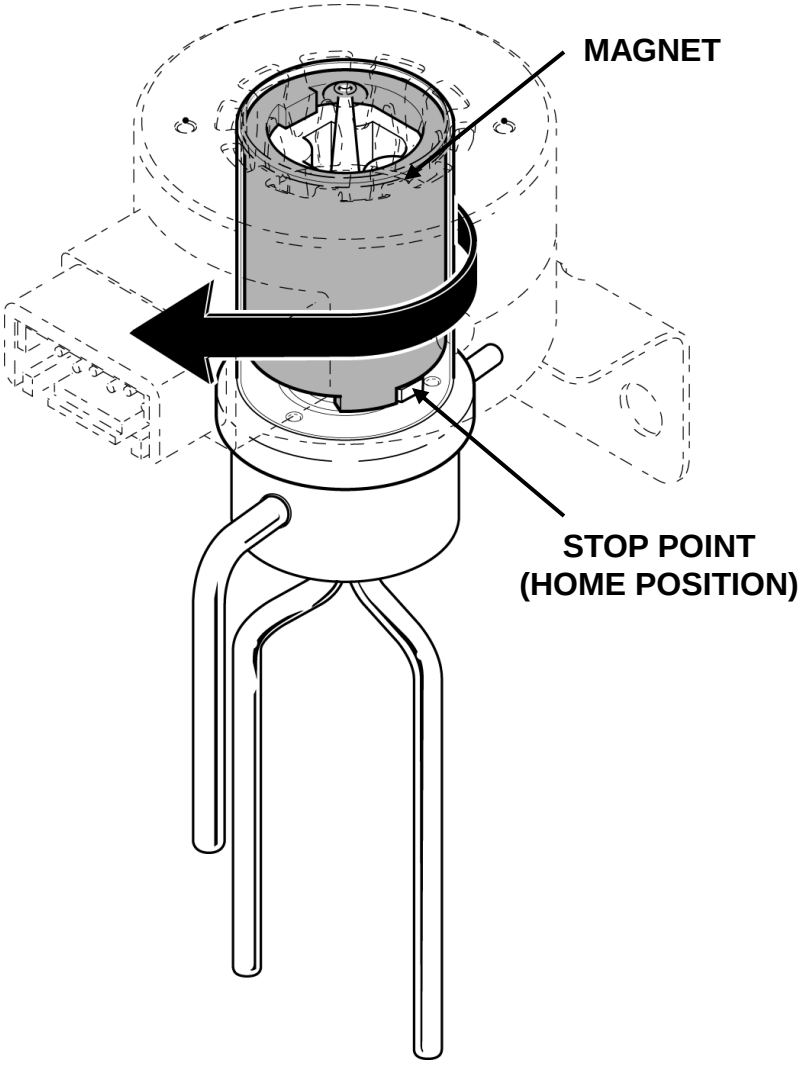
VALVE ROTATION

The pulses of the valve coil cause the magnet to rotate inside the valve body

As the magnet rotates, it moves the cam at the bottom of the valve

The cam opens or covers the “ports” to the capillary tubes





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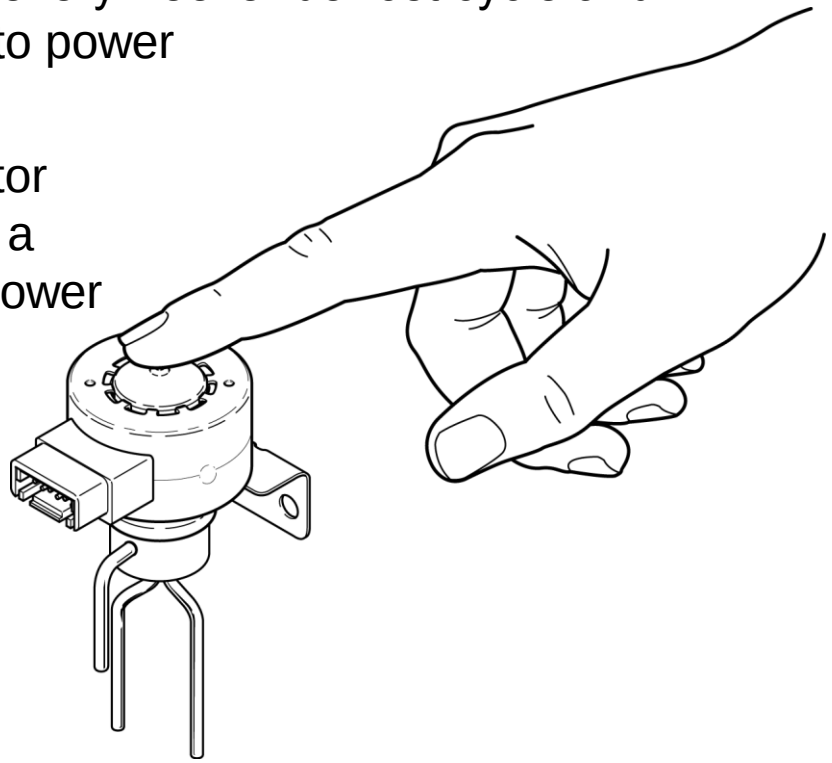
TESTING THE 3-WAY VALVE

The valve returns to “home” at the end of every freezer defrost cycle and whenever the refrigerator is reconnected to power

To test the valve, disconnect the refrigerator from power for at least 10 seconds, place a finger on top of the valve and reconnect power



The main control overdrives the valve to the “home” position

You should be able to “feel” the valve move as it returns to the home position

<u>If movement is present, the main board and valve coil are operating correctly</u>

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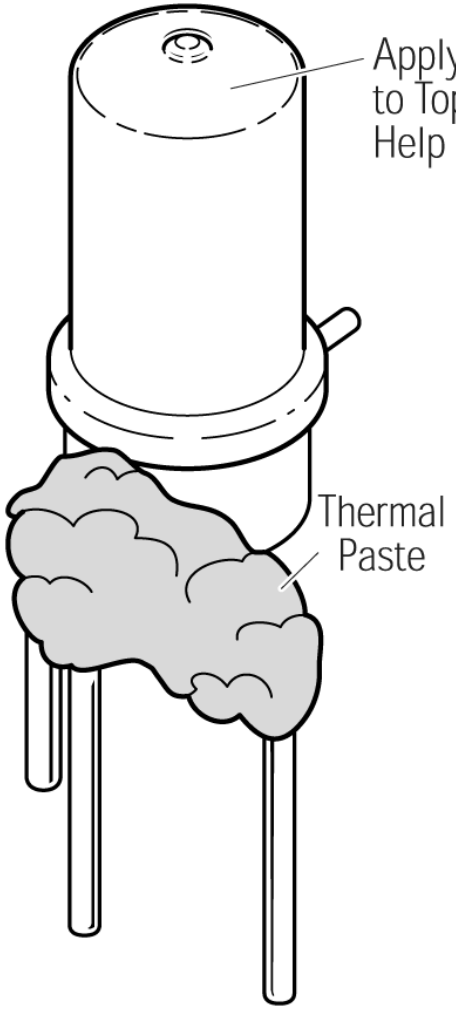
BRAZING THE 3-WAY VALVE

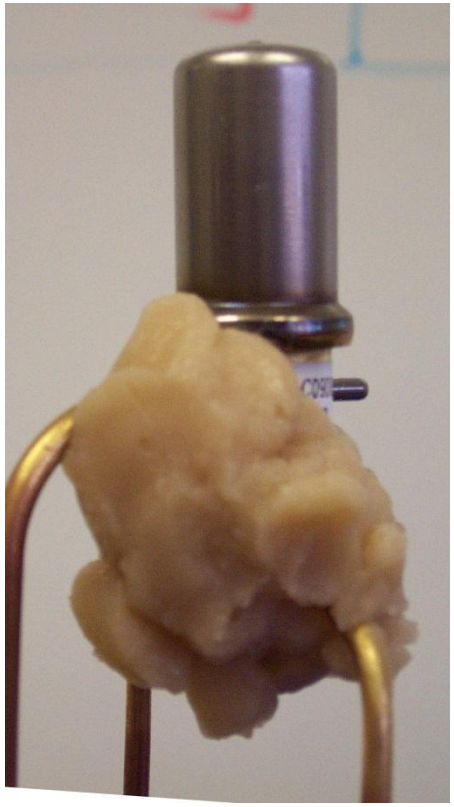
Make certain the keep the valve body cool during brazing

Apply a liberal amount of heat absorbing paste around the valve body

Apply a wet cloth to the valve housing to keep the plastic parts cool while brazing

Thoroughly dry the valve of any moisture before installing the coil on the valve





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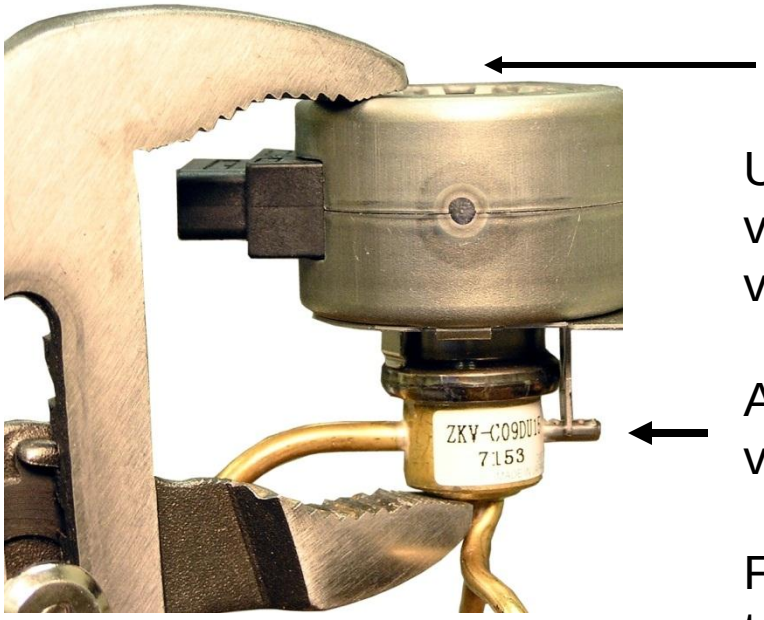
Installing 3-way Valve Coil



Use care not to damage the top of the valve body when installing the coil on the valve

A locating pin is used to correctly align the valve body in the valve coil

Failure to fully seat the valve in the coil or to align it correctly with the pin can cause the system to stop cooling

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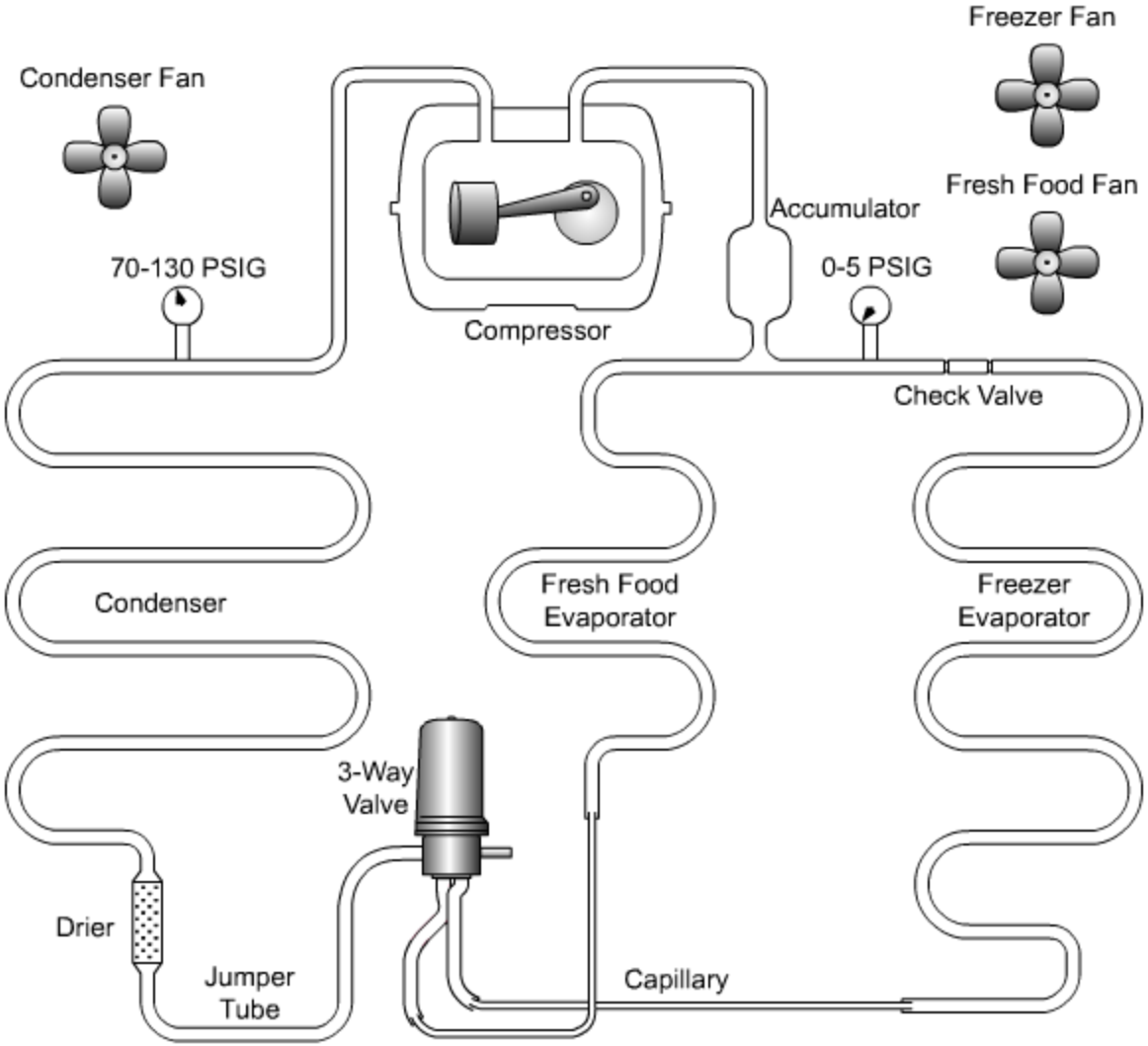
FRESH FOOD AND FREEZER SECTION COOLING



FRESH FOOD

FREEZER

BOTH

High Pressure Vapor

Mix of Liquid and Vapor

High Pressure Liquid

Low Pressure Liquid

Mix of Liquid and Vapor

Low Pressure Vapor

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Service Bulletin

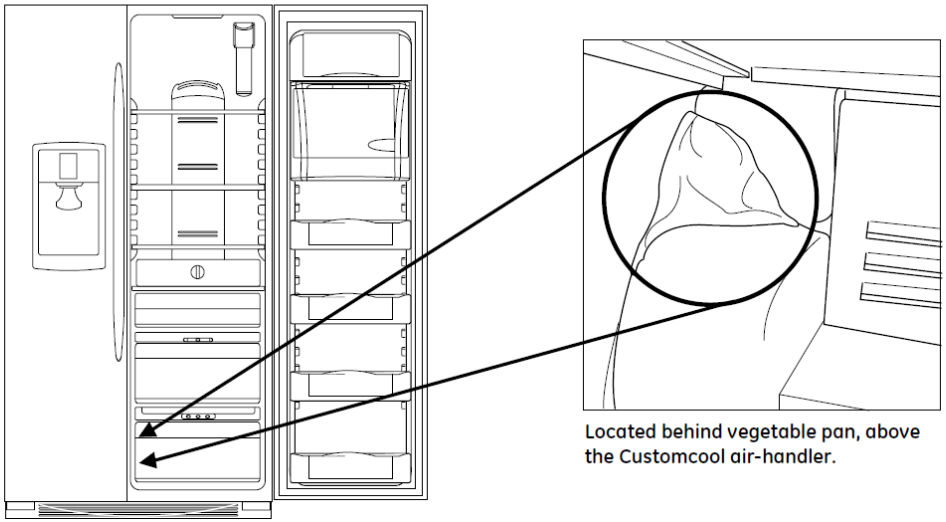
NOVEMBER 2007

REFRIGERATORS REF 11-07
DUAL EVAPORATOR SIDE-BY-SIDE REFRIGERATORS
SERIAL NUMBERS AG - ZM
ICE BALL KIT
WR49X10180 (DOMESTIC 120V)
WR49X10175 (INTERNATIONAL 220V)

FRESH FOOD ICE BALL

Dual Evaporator models, by design, create a high humidity environment in the fresh food section. Although this design improves the preservation of certain refrigerated foods, the potential exists in some units for an ice ball to form in the lower section of the compartment due to excessively cold temperatures and high humidity. The low temperatures are created by gaps around the beverage center duct and along the left side of the Custom Cool air handler cover. These locations can be sealed and the temperature improved using the service kit **WR49X10180** (120V heater) or **WR49X10175** (220V heater). Refer to the attached kit instructions for the proper repair method.

Models Affected: PSF26P, PSS26P, PSW26P, PSF26R, PSW26R, PCF23P, PSC23P, PSH23P, PSW23P, PCF23R, PSW23R, PCF25M, PSC25M, PCF25N, PSC25N, PCF25P PSH25P, PSC25P, PSH25P, ZFSB23D, ZFSB26D



Located behind vegetable pan, above the Customcool air-handler.

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